



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/511,259

08/19/2005

Robert Ashe

377.8116USU

8671

27623

7590

11/15/2006

OHLANDT, GREELEY, RUGGIERO & PERLE, LLP
ONE LANDMARK SQUARE, 10TH FLOOR
STAMFORD, CT 06901

EXAMINER

FORD, JOHN K

ART UNIT

PAPER NUMBER

3744

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/511,259

Applicant(s)

ASHE ET AL.

Examiner

John K. Ford

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/16/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 4, 6, 10, 12 and 14-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-9, 11, 13, 18, 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/19/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Art Unit: 3744

Applicant's response of October 16, 2006 has been studied carefully. Applicant's election of the apparatus and of the flow path of claim 5, heat exchanger of claim 11 and actuator of claim 13 is acknowledged. Applicant has identified claims 1-3, 5, 7-9, 11, 13, 18 and 19 as readable on the elected species. In so far as the traverse based on an allegation of no serious burden, the examiner believes it is moot in light of applicant's cancellation of claims 20-30, but, to be complete, the examiner maintains the burden is serious in the limited time allotted for examination and for the reasons set forth in the previous office action. The examiner also assures applicant that in the event a generic claim is allowed, all properly dependent species claims will be re-joined and allowed as well. The restriction and election requirements are deemed proper and made final.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 5, 7-9, 11, 13, 18 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claim 1 it states that the number of heat transfer elements in operation is controlled by measurement of the temperature of the medium to be controlled. It appears that the only disclosed temperature sensors in Figures 1 and 2 capable of performing the temperature measurement function are located at 20 and 21 and both of these sensors respond to the temperature of the heat transfer fluid not the temperature of the process fluid 15 (which process fluid apparently corresponds to applicant's claimed "medium to be controlled"). Thus, claim 1 appears to be mis-descriptive of the disclosure as embodied in Figures 1 and 2. More of a problem, it appears that if the pistons (11 and/or 12) are moved to the process fluid passage as is apparently disclosed on page 7, lines 24-27 of the specification, it is unclear to the examiner if the system can operate at all (i.e. the system would be inoperative) because the ports in the plates for that fluid are not aligned with one another, thereby precluding the piston(s) (11 and/or 12) from going directly through.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 5, 7-9, 11, 13, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 3744

In claim 1, there is no antecedent basis for the term "the actuator." In claim 1, terms like "which can be" and "in operation" are not considered limiting on a claim clearly directed to apparatus. "Which can be" is vague because it is equivocal in nature. Please set forth limitations positively and unequivocally. "In operation" is a method of use limitation in an apparatus claim. See MPEP 2114, "Manner of operating the device does not differentiate apparatus claim from the prior art" incorporated here by reference. It is not given weight here. Finally, "to control" and "for controlling" absent some proper means plus function recitations are functional statements and treated consistent with MPEP 2114. To paraphrase what is stated there, apparatus claims define what a device is not what a device does. The same criticism applies to claims 2 and 7-9. The heat exchanger of claim 1 does not undergo a metamorphosis into a new heat exchanger merely by specifying an intended fluid to be used in the heat exchanger or intended temperatures of operation. Again, see MPEP 2114, incorporated here by reference by way of explanation.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3744

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 7, 8, 9, 11, 13, 18 and 19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 11-37517 (Figure 9).

In Figure 9, JP '517 shows a plate type heat exchanger 50 with a "number-of-passes adjustment device" 63 that controls the number of passes based on measured temperatures. As disclosed in paragraphs 0137 – 0139 of the machine translation attached to JP '517, it discloses different ways to control the number of passes to maintain certain temperatures constant. Paragraphs 0137 – 0139 of the machine translation attached to JP '517 do not constitute an exclusive list of the different manners in which the device may be controlled, and in the interest of full disclosure the entire document is incorporated by reference here by way of explanation. Regarding claim 13, the tip of "number-of-passes adjustment device" 63 that projects into the plate type heat exchanger 50 is deemed to be a "piston" as that term is defined in the dictionary.

Claims 1, 2, 3, 7, 8, 9, 11, 13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art, JP 11-37517 (Figure 9), as applied to claims 1, 2, 3, 7, 8, 9, 11, 13, 18 and 19 above, and further in view of Bolmstedt et al (USP 4,700,770).

Bolmstedt teaches using a piston 15 on the end of a rod 16 reciprocating in a tube 8 to control the number of passages in a plate-type heat exchanger to adjust the capacity of the plate-type heat exchanger. To have modified JP 11-37517 (Figure 9) with a piston at the end of rod 63 and a tube such as 8 as taught by Bolmstedt to improve cut-off of flow from unused passages in a plate type heat exchanger would have been obvious to one of ordinary skill in the art.

Claims 1, 2, 3, 7, 8, 9, 11, 13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art, JP 11-37517 (Figure 9) alone or in view of Bolmstedt, as applied to claims 1, 2, 3, 7, 8, 9, 11, 13, 18 and 19 above, and further in view of JP 61-291,898.

JP '898 measures the temperature of the fluid whose temperature is to be controlled and varies the number of heat transfer elements in operation in cascade fashion. To have made elements 14a-14d of JP '898 as plates rather than tubes as taught by JP '517 would have been obvious to one of ordinary skill in the art.

Alternatively to have controlled the control rod of JP '517 to respond to the temperature of the fluid medium to be controlled would have been obvious to one of ordinary skill in the art in view of JP '898, which teaches the same.

Art Unit: 3744

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of the prior art as applied to claim 1 above, and further in view of Doi (USP 3,605,881)

In Figure 2, Doi teaches having one fluid pass in parallel (see arrows "c" and "e" in Figure 2) and the other fluid pass in series flow (see arrows "d" and "f" in Figure 2) through as plate-type heat exchanger. To have configured any of the prior art plate type heat exchangers discussed above in reference to the various aforementioned rejections of claim 1 with the fluid paths taught in Figure 2 of Doi would have been obvious to one of ordinary skill in the art to enjoy the advantage discussed in Doi (namely to make the channel velocities equal to one another even when the overall flow rates of the two fluids are significantly different).

Claims 1, 2, 3, 7, 8, 9, 11, 13, 18 and 19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jonsson et al (USP 5,950,715).

Jonsson shows in Figures 3 and 4 a plate type heat exchanger that has the temperature of the medium entering at port 5 controlled by the number of plate passages that are open. The opening of the plate passages are controlled by first and second temperature responsive valves 17 and 18 located at the respective inlet and outlet for the liquid whose temperature is to be controlled. The sleeves and seals that

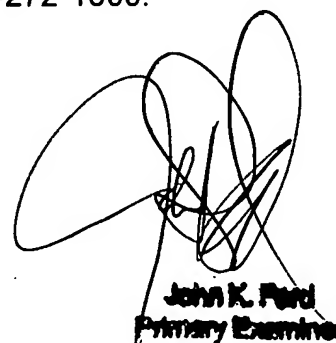
Art Unit: 3744

make up the valves 17 and 18 are deemed to be pistons absent some precise limitation in the claims as to the actual construction of the "piston".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Ford whose telephone number is 571-272-4911. The examiner can normally be reached on Mon.-Fri. 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John K. Ford
Primary Examiner